THE JOURNAL

OF

BIOLOGICAL CHEMISTRY

FOUNDED BY CHRISTIAN A. HERTER AND SUSTAINED IN PART BY THE CHRISTIAN A. HERTER MEMORIAL FUND

EDITED BY

H. D. DAKIN, New York City.
E. K. DUNHAM, New York City.
LAFAYETTE B. MENDEL, New Haven, Conn.
A. N. RICHARDS, Philadelphia, Pa.
DONALD D. VAN SLYKE, New York City.
CLARENCE J. WEST, New York City.

WITH THE COLLABORATION OF

J. J. ABEL, Baltimore, Md.
R. H. CHITTENDEN, New Haven, Conn.
OTTO FOLIN, Boston, Mass.
WILLIAM J. GIES, New York.
L. J. HENDERSON, Cambridge, Mass.
REID HUNT, Boston, Mass.
W. A. JACOBS, New York.
WALTER JONES, Baltimore, Md.
J. H. KASTLE, Lexington, Ky.
J. B. LEATHES, Sheffield, England.
P. A. LEVENE, New York.
JACQUES LOEB, New York.
A. S. LOEVENHART, Madison, Wis.
GRAHAM LUSK, New York.
A. B. MACALLUM, Toronto, Canada.
J. J. R. MACLEOD, Cleveland, Ohio.
JOHN A. MANDEL, New York.
A. P. MATHEWS, Chicago, Ill.
F. G. NOVY, Ann Arbor, Mich.
THOMAS B. OSBORNE, New Haven, Conn.
T. BRAILSFORD ROBERTSON, Berkeley, Cal.
P. A. SHAFFER, St. Louis, Mo.
A. E. TAYLOR, Philadelphia, Pa.
F. P. UNDERHILL, New Haven, Conn.
V. C. VAUGHAN, Ann Arbor, Mich.
ALFRED J. WAKEMAN, New Haven, Conn

VOLUME XXIV
BALTIMORE
1916

COPYRIGHT 1916
BY
THE JOURNAL OF BIOLOGICAL CHEMISTRY

PUBLISHED BY THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH FOR THE JOURNAL OF BIOLOGICAL CHEMISTRY, INC.

COMPOSED AND PRINTED AT THE
WAVERLY PRESS
BY THE WILLIAMS & WILKINS COMPANY
BALTIMORE, U. S. A.

CONTENTS OF VOLUME XXIV.

EPSTEIN, ALBERT A., and BAEHR, GEORGE. Studies in experimental diabetes after pancreatectomy 1

EPSTEIN, ALBERT A., and BAEHR, GEORGE. The effect of phlorhizin on the formation of glycogen in the liver 17

SANSUM, W. D., and WOODYATT, R. T. The use of phlorhizinized dogs to determine the utilizable carbohydrate in foods. The food value of commercial glucose 23

MORGULIS, SERGIUS, and FULLER, EVERETT W. Can carbon dioxide in sea water be directly determined by titration? 31

OSBORNE, THOMAS B., and MENDEL, LAFAYETTE B. The stability of the growth-promoting substance in butter fat 37

LEVENE, P. A., and WEST, C. J. Cephalin. II. Brain cephalin 41

LEVENE, P. A. Glucosaminoheptonic acid 55

LEVENE, P. A. Ammonia derivatives of the sugars 59

LEVENE, P. A., and WEST, C. J. Sphingosine. IV. Some derivatives of sphingosine and dihydrosphingosine 63

LEVENE, P. A. Sphingomyelin. III 69

BUNZELL, HERBERT H. The mode of action of the oxidases 91

BUNZELL, HERBERT H. The relative oxidase activity of different organs of the same plant 103

LEVENE, P. A., and WEST, C. J. Cephalin. III. Cephalin of the egg yolk, kidney, and liver. Preliminary paper 111

VAN SLYKE, DONALD D., and CULLEN, GLENN E. The determination of urea by the urease method 117

PEARL, RAYMOND. Studies on the physiology of reproduction in the domestic fowl. XIV. The effect of feeding pituitary substance and corpus luteum substance on egg production and growth 123

MORGULIS, SERGIUS. Changes in the weight and composition of fasting lobsters 137

MYERS, VICTOR C., and BAILEY, CAMERON V. The Lewis and Benedict method for the estimation of blood sugar, with some observations obtained in disease 147

MORSE, MAX. Is autolysis an autocatalytic phenomenon? 163

CRAWFORD, ALBERT C., and WATANABE, WALTER K. The occurrence of *p*-hydroxyphenylethylamine in various mistletoes 169

BOSWORTH, ALFRED W., and VAN SLYKE, LUCIUS L. The casein of goat's milk 173

BOSWORTH, ALFRED W., and VAN SLYKE, LUCIUS L. The soluble and insoluble compounds of goat's milk 177

BOSWORTH, ALFRED W., and VAN SLYKE, LUCIUS L. A comparison of the composition of cow's milk, goat's milk, and human milk 187

298829

VAN SLYKE, LUCIUS L., and BOSWORTH, ALFRED W. Chemical changes in the souring of milk 191
ADDIS, THOMAS, and WATANABE, C. K. The rate of urea excretion. First paper. A criticism of Ambard and Weill's laws of urea excretion 203
TOTTINGHAM, W. E. The increase of nitrogen in fermenting manures. 221
BLOOR, W. R. The determination of cholesterol in blood 227
LILLIE, RALPH S. Mass action in the activation of unfertilized starfish eggs by butyric acid 233
LEWIS, JULIAN HERMAN. The presence of epinephrin in human fetal adrenals 249
CROZIER, W. J. Cell penetration by acids 255
WASTENEYS, HARDOLPH. The rate of oxidations in reversed artificial parthenogenesis 281
MOULTON, C. R. Units of reference for basal metabolism and their interrelations 299
KRAUSS, ROBERT B. The electrolytic determination of iodine present in organic matter 321
SANSUM, W. D., and WOODYATT, R. T. Studies on the theory of diabetes. VI. The behavior of *dl*-glyceric aldehyde in the normal and diabetic organism 327
SANSUM, W. D., and WOODYATT, R. T. Studies on the theory of diabetes. VII. The intravenous tolerance limit for *dl*-glyceric aldehyde and the improbability that it is a chief intermediate in glucose catabolism 343
ROBERTSON, T. BRAILSFORD, and RAY, L. A. Experimental studies on growth. I. Methods 347
ROBERTSON, T. BRAILSFORD. Experimental studies on growth. II. The normal growth of the white mouse 363
ROBERTSON, T. BRAILSFORD. Experimental studies on growth. III. The influence of the anterior lobe of the pituitary body upon the growth of the white mouse 385
ROBERTSON, T. BRAILSFORD. Experimental studies on growth. IV. The influence of tethelin, the growth-controlling principle of the anterior lobe of the pituitary body, upon the growth of the white mouse 397
ROBERTSON, T. BRAILSFORD. On the isolation and properties of tethelin, the growth-controlling principle of the anterior lobe of the pituitary body. Plate 1 409
Proceedings of the American Society of Biological Chemists .....
MCCRUDDEN, F. H., and SARGENT, C. S. The occurrence and determination of creatine in the urine 423
CSONKA, FRANK A. A critique of certain data on the content of cholesterol and fatty substances in the blood, together with a modification of the colorimetric method for estimating cholesterol 431

BAUMANN, LOUIS, and HINES, HARRY M. Determination of creatine in muscle. II..... 439
CROZIER, W. J. Some indicators from animal tissues..... 443
BLOOR, W. R. Fat assimilation..... 447
MITCHELL, H. H., SHONLE, H. A., and GRINDLEY, H. S. The origin of the nitrates in the urine..... 461
McCOLLUM, E. V., and KENNEDY, CORNELIA. The dietary factors operating in the production of polyneuritis..... 491
HARDING, VICTOR JOHN, and MACLEAN, REGINALD M. A colorimetric method for the estimation of amino-acid α-nitrogen. II. Application to the hydrolysis of proteins by pancreatic enzymes..... 503
McCLENDON, J. F. Improved gas chain methods of determining hydrogen ion concentration in blood..... 519
NELSON, V. E. Some color reactions for indole and scatole..... 527
NELSON, V. E. Indole in cheese..... 533
Index to Vol. XXIV..... 537